

Exercise 1 The temperature T in degrees Fahrenheit t hours after 6 AM is given by:

$$-\frac{1}{2}t^2 + 8t + 32,$$

for $0 \leq t \leq 12$.

- (a) $T(4) = \boxed{56}^\circ$ F. This is the temperature at

Multiple Choice:

- (i) 4AM.
 - (ii) 10AM. ✓
 - (iii) 4PM.
 - (iv) 10PM.
- (b) The average rate of change of T over the interval $[4, 8]$ is $\boxed{2}$.
- (c) The average rate of change of T from $t = 8$ to $t = 12$ is $\boxed{-2}$.
- (d) The average rate of temperature change between 10 AM and 6 PM is $\boxed{0}$.
- (e) The units for the rates above are

Multiple Choice:

- (i) degrees Fahrenheit.
 - (ii) degrees Celsius.
 - (iii) degrees Celsius per hour.
 - (iv) degrees Celsius per minute.
 - (v) degrees Fahrenheit per hour. ✓
 - (vi) degrees Fahrenheit per minute.
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